September 16, 2010

Ex Parte

Julius Genachowski
Chairman
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: Unlicensed Operation in the Television Broadcast Bands
ET Docket Nos. 04-186, 02-380

Dear Chairman Genachowski:

Dell Inc., Microsoft Corp., and Spectrum Bridge, Inc. have worked hard and made substantial compromises in an effort to bring the Commission's white spaces proceeding to a resolution. This Order, depending on the decisions it makes, has the potential to greatly benefit American consumers and lead to hundreds of millions of dollars of investment. But in the past week we have learned of elements that are being considered for inclusion in the pending Order that threaten the viability of white spaces technologies. Specifically, we understand that the FCC is considering (1) allowing previously illegal wireless microphones to register in the white spaces database, and (2) drastically reducing the time-interval during which Mode I white space devices must contact base stations. We urge the Commission to reject these ideas, as discussed below.

More generally, additional changes to the order to accommodate wireless microphone operations effectively reduce the channels available to white spaces devices. With each of these changes, white spaces operations become significantly more difficult. Therefore, if the Commission determines that it must further accommodate wireless microphones, we urge it to concurrently provide additional spectrum resources for white spaces devices. This is most easily accomplished by reducing the number of channels reserved for wireless microphones.

1. The Commission Should Not Allow Previously Illegal Microphones to Register in the Database

In filings addressing petitions for reconsideration in this proceeding, some wireless microphone advocates ask the Commission to reward their previous failure to comply with FCC rules by allowing them to register in the white spaces database – essentially giving them the status of broadcast licensees.[1]

[1] *See, e.g.*, Opposition of the Coalition of Wireless Microphone Users to Petitions for Reconsideration, ET Docket Nos 04-186, 02-380, at 6 (filed May 8, 2009).

As the record makes clear, this would be disastrous policy.[2] Registering non-broadcast microphones would significantly impede white space operations, encourage grossly inefficient spectrum use,[3] and reward those who have openly flouted the Commission's rules. Moreover, doing so is unnecessary given the ample spectrum available for wireless microphones, both inside and outside the TV bands. Wireless microphone users have several channels in every market in the country where white space devices may not operate – reserved channels. And as demonstrated during the FCC's field tests, wireless microphones even operate co-channel with broadcasters without any reported complaints of interference. Wireless microphone users will have more *reserved* spectrum in most major markets than personal portable white spaces users will have *shared* spectrum. There is no need for including wireless microphone users in the database, and Dell, Microsoft, and Spectrum Bridge urge the Commission in the strongest terms to reject these proposals.

Nonetheless, we understand that the Commission may decide that it must allow a small subset of large-scale, previously unauthorized microphone users to register with a database, such as Broadway theaters using dozens of simultaneous microphones. While we strongly disagree with this approach, if it proceeds, at a minimum the Commission should take several steps to limit the harm to white spaces technologies, establish a system that will not result in entities "gaming" the system, and promote efficient use of this important spectrum. Although doing so will not guarantee white spaces' success, failure to take these actions threatens to undermine a viable market for white spaces devices.

First, the Commission—and not individual database administrators—must determine who is eligible to register in the database. Requiring database administrators to make judgments on whether a microphone user should or should not have access to the database places the administrator in an impossible situation and threatens to result in improper registration. Database administrators facing disputes and potential litigation from Part 15 wireless microphone users will have a strong incentive to allow registration even of those users who have not demonstrated efficient use of existing spectrum. With multiple database providers, determinations will be inconsistent.

Furthermore, database providers are not experts in determining whether wireless microphone providers have thoroughly, consistent with good engineering practices, made use of

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[2] *See* Opposition to Petitions for Reconsideration of the Public Interest Spectrum Coalition, ET Docket Nos. 04-186, 02-380 at 8-9 (filed May 8, 2009); Dell Inc. and Microsoft Corp., Reply in Support of Petition for Reconsideration, at 3-5 (filed May 18, 2009).

[3] As the Commission has recognized, "the maximum number of wireless microphones that operate simultaneously in a 6 megahertz TV channel may be as few as six or eight. In other words, only 1.2 – 1.6 megahertz of the 6 megahertz TV channel may only be used while the remainder is effectively left fallow." Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band, WT Docket Nos. 08-166, 08-167, ET Docket No. 10-24, Report and Order and Further Notice of Proposed Rulemaking ¶ 147 (2010).

all available reserved channels. In fact, it is unclear how they will even have access to verifiable information on any claims made by an applicant – and it is unclear if the FCC would have any recourse if a database provider acted incorrectly or an applicant made a misrepresentation. This is exactly the kind of determination that the Office of Engineering and Technology excels at making, and, importantly, any applications to OET would be subject to the Commission's misrepresentation and lack of candor rules. With only extremely large microphone users even eligible to apply, the total number of applications should be very manageable – there are only a very limited number of entities that require the dozens of simultaneously operating microphones that could theoretically consume all available reserved channels – so this will not create an unreasonable administrative burden for OET.

Second, wireless microphone entities applying to register in the database must be required to have operations that consume all available reserved channels from channel 7 to channel 51, as well as available spectrum outside the TV bands. There is no reason for a wireless microphone user to register in the database if it can use a reserved channel. Therefore, the Commission should require that any such applicant prove that their operations require a number of simultaneously operating wireless microphones that result in a need greater than that provided by the channels the FCC has reserved for microphone users. These channels, for any given geographic area, range from channel 2 to channel 51. Wireless microphone advocates have argued that the very lowest frequencies in this range are difficult to use, but even taking these lowest channels off the table, that leaves many channels between channel 7 and 51. Applications should be accompanied by a detailed technical showing that the applicant has used all reasonable engineering practices, reasonably available technologies, and reasonably available equipment to maximize use of this available spectrum and avoid harmful interference.[4] Specifically, applicants should demonstrate that they have already maximized use of every channel between 7-51 where personal/portable TVBDs cannot operate (including coordinating use of those channels with any other wireless microphone users at their location), that they have taken advantage of improved modulation techniques and other technologies that enable more efficient spectrum use, and that they have employed solutions using spectrum outside the TV bands where available.

Third, any permission to register in the database granted by the Commission should be meaningfully limited. Permission should be granted only to individual entities,[5] and a successful applicant should be permitted to register only for the channel or channels specified in its application and determined necessary by the Commission, only at the entity's specific location, and only on a time-limited per-event basis. Allowing unlimited inclusion in the database – whether unlimited by channel, geography, or time – would unnecessarily make channels unavailable for white spaces use.

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[4] Only entities with the resources to employ dozens of simultaneous microphones will find existing reserved channels insufficient, and these sophisticated entities are certainly capable of employing all available technical means of mitigating interference before applying for inclusion in the database.

[5] A single theater or church is an example of an individual entity. A coalition of theaters or churches is not an individual entity.

Fourth, the Commission should avoid the confusion and incentives for improper use that characterized the past regime by requiring all applications to be assessed through a public process subject the Commission's misrepresentation and lack of candor rules. Dell, Microsoft, and Spectrum Bridge recognize that a truthful, complete description of a large entity's wireless microphone use will often require an acknowledgement that the entity operates on the same channels as television broadcasters, as illustrated in testing conducted by the Office of Engineering and Technology.[6] Therefore, the Commission should explicitly permit applicants to disclose these uses without fear of enforcement action.

2. Reducing the Time Interval During Which White Space Devices Must Contact Base Stations will Unnecessarily Reduce White Space Device Functionality.

Microsoft, Dell and Spectrum Bridge understand that the Commission is considering reducing the time interval during which White Spaces devices must communicate with base stations or the database. We urge the Commission not to amend this portion of the 2008 Order.

MSTV argues that the FCC should require white space devices to communicate with the base stations, and base stations to communicate with databases, on a "near real-time basis" instead of doing so on a daily basis as provided by the current rules. This requirement is unnecessary. As discussed in our ex parte of September 15, 2010, licensees typically know when they will be using TV band spectrum well before they begin operations, and because wireless microphones used for itinerant licensed applications can use reserved channels in the unusual instances where they are not able to register with the database in time.

Increasing the number of times the device must communicate creates real costs for consumers and manufacturers. For example, if a device must communicate with the database with high frequency, the cost of administering the database will reflect the additional bandwidth required, meaning additional costs for consumers. Similarly, frequent communication with a base station or the database, requires a device to be continuously powered at a high power usage level which depletes its battery unnecessarily, effecting consumer experience and device adoption. For small battery-powered devices, this constant communication will quickly drain batteries. ,

For these reasons, the FCC should require that Mode 1 (client) devices contact a Mode 2 (master) device *only when it is otherwise transmitting*; to do otherwise will significantly deplete the device's battery prematurely, reducing its utility with no attendant improvement in interference protection. Additionally, the Commission should not require base stations to make contact with the database unless the database informs the device that communication is necessary because of a change in the database due to the registration of temporary ENG operations. Finally, if the Commission makes any change in this area, we urge it to, at the same time, reduce

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6 *See generally* Ex Parte letter of the White Spaces Coalition, ET Docket Nos. 04-186, 02-380 (filed Aug. 19, 2008).

the number of channels reserved for wireless microphones. If a white space device receives database information in near real-time, newsgathering operations and other itinerant licensed users can simply enter their location into the database, eliminating the need to restrict access to those channels at times when they are not in use. Therefore, the Commission can safely reduce the number of reserved channels while still being sure that any Part 74 device will have access to spectrum when it is needed.

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Dell, Microsoft, and Spectrum Bridge thank the Commission for its attention to these important issues. With the right rules, we look forward to bringing the benefits of white spaces devices to consumers as soon as possible.

Respectfully submitted,

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